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| EXAMINER |
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KARACSONY, ROBERT

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2821

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/553,750

Applicant(s)

SEKIGUCHI ET AL.

Examiner

Robert Karacsony

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is in response to amendments received September 01, 2007. Claims 1-7 are pending.

Claim Objections

2. Claim 6 is objected to because of the following informalities: On the second to last line of claim 6, applicant recites the limitation "when **the first antenna element** is retracted into the casing". According to the Written Description, it is **the second antenna element** that is retracted into the case (*see figs. 5A and 5B*). For examination purposes, examiner interprets the claim as such. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 5: On line 13, claim 5, applicant recites the limitation "a first frequency band". Also, on line 7, claim 3, applicant recites the limitation "a first frequency band". It is unclear to the examiner what the applicant is trying to claim since there are two first frequency bands.

6. Claim 6: On line 3, claim 6, applicant recites the limitation "a first antenna element". Also, on line 2, claim 3, applicant recites the limitation "a first antenna element". It is unclear to the examiner what the applicant is trying to claim since there are two first antenna elements.

On line 4, claim 6, applicant recites the limitation “a second antenna element”. Also, on line 2, claim 3, applicant recites the limitation “a second antenna element”. It is unclear to the examiner what the applicant is trying to claim since there are two second antenna elements.

On lines 6, 9 and 12, claim 6, applicant recites the limitation “the second antenna element”. It is unclear to the examiner which “second antenna element” the applicant is trying to claim since there are two second antenna elements (see claim 3).

On line 11, claim 6, applicant recites the limitation “the first frequency band”. It is unclear to the examiner which “first frequency band” the applicant is trying to claim since there are two first frequency bands (see claim 3).

7. Claim 7: On lines 3 and 5, claim 7, applicant recites the limitation “the first antenna element”. It is unclear to the examiner which “first antenna element” the applicant is trying to claim since there are two first antenna elements (see claim 3).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by *Kane* (US 4,381,566, hereinafter *Kane*).

Claim 1: *Kane* teaches a variable tuning antenna comprising:
a radiation element (127); and

a tuning circuit (131, 136, 137) connected to the radiation element in series, the tuning circuit comprising

a first inductance element (131) and

a parallel circuit (136, 137) which is connected to the first inductance element in series, the parallel circuit comprising

a second inductance element (136) and

a variable capacitance element (137) connected to each other in parallel,

wherein

the tuning circuit is set so that a combined reactance of the radiation element and the first inductance element and a combined reactance of the parallel circuit are canceled by each other (col. 5/lines 49-53), and

the parallel circuit does not resonate in a desired receiving frequency band (since the antenna of *Kane* is functional in the frequency band, the parallel circuit must necessarily not resonate in a desired frequency band), and wherein

the tuning circuit is formed so as to be tunable in the desired frequency band by varying the capacitance of the variable capacitance element (col. 5/lines 17-21).

Claim 2: *Kane* teaches the variable capacitance element comprises two variable capacitance diodes (137, 137'), the two variable capacitance diodes being connected in series in reverse polarity, and having a terminal of a control voltage (19) connected to a connecting part of the two variable capacitance diodes.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kane* in view of *Holshouser et al.* (US 6,229,489, hereinafter *Holshouser*).

Claim 3: *Kane* teaches all of the limitations of claim 1, as discussed above. *Kane* fails to teach the radiation element comprises a first antenna element and a second antenna element connected to each other electrically in series, the first antenna element and the second antenna element being formed in an electric length so as to resonate at a frequency within the desired frequency band by the total length, and so as to resonate at a first frequency band of a wide band in the desired frequency band with the tuning circuit, and so as to resonate at a second frequency band by only the first antenna element. However, *Holshouser* teaches a retractable dual-band antenna which uses both the rod and a helical antenna to resonate when extended and uses only the helical antenna when retracted (col. 4/lines 15-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the combined antenna, rod and helical antenna, of *Holshouser* as the antenna of *Kane* in order to have utilized a dual frequency bands.

Claim 4: *Kane* in view of *Holshouser* teach all of the limitations of claim 3, as discussed above. They fail to teach the first frequency band is a frequency band of a digital TV. However, it was well known to someone of ordinary skill in the art at the time the invention was made that

the resonance frequency at which an antenna is to be used can be selected to be whatever resonance frequency needed for its intended use. Therefore, it would have obvious to have adjusted the parameters of the antenna of *Kane* to resonate at a frequency band of digital TV since it was well known at the time of the invention that the resonance frequency at which an antenna is to be used can be selected to be whatever resonance frequency needed for its intended use. Also, the limitation is considered a suggested use limitation and is not given any patentable weight. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

12. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kane* in view of *Holshouser* as applied to claim 3 above, and further in view of *Ryou et al.* (US 7,132,998, hereinafter *Ryou*).

Claim 5: *Kane* in view of *Holshouser* teach all of the limitations of claim 3, as discussed above, as well as, a portable wireless device comprising: a transmitting/ receiving circuit, a casing surrounding the transmitting/receiving circuit, a feeding part located near to the casing and connected to the transmitting/receiving circuit electrically (all of the elements are inherently present in mobile phones) a variable tuning antenna comprising a tuning circuit and a radiation element which are connected to the feeding part (antenna of claim 3). They fail to teach a third antenna element connected to the feeding part, wherein the third antenna element comprises an antenna resonating at a third frequency band different from that of the variable tuning antenna, so that two frequency bands of a first frequency band of a wide band obtained by the variable tuning antenna and the third frequency band can be transmitted and received. However, *Ryou*

teaches a triple band antenna comprising a double helical coil mounted on the case of a terminal, a rod and another helical coil at the top end of the rod (see fig. 10d). Therefore, it would have obvious to have used the triple band antenna of *Ryou* as the antenna of *Kane* in order to have utilized three resonance frequency bands.

Claim 6 is similar in scope as claim 3 and is therefore rejected for substantially the same reasons.

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Kane* in view of *Holshouser* and *Ryou* as applied to claim 6 above, and further in view of *Kanayama et al.* (US 5,861,859, hereinafter *Kanayama*).

Claim 7: *Kane* in view of *Holshouser* and *Ryou* teach all of the limitations of claim 6, as discussed above. They fail to teach the first antenna element and the third antenna element are formed in an electrical length so as to resonate at the same frequency band and the first antenna element and the third antenna element are adjusted so as to strengthen radio waves transmitted and received in phase with each other. However, *Kanayama* teaches a retractable antenna comprising two helical antennas, one mounted to the phone and one attached to the top of a whip antenna, that when the antenna is retracted the two helical antennas radiate in the same band with improved sensitivity (col. 9/lines 54-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of *Kanayama* with the modified invention of *Kane* in order to have improved the sensitivity of the antenna.

Response to Arguments

14. Applicant's arguments filed September 01, 2007 have been fully considered but they are not persuasive.

15. Regarding the arguments beginning on page 7, line 10 to page 9, line 8, that the examiner has misinterpreted the reference by applying the description of figures 3 and 6 to read on figure 36, as well as, *Kane* fails to teach the tuning circuit is set so that a combined reactance of the radiation element and the first inductance element and a combined reactance of the parallel circuit are canceled by each other. Examiner notes, *Kane* uses figures 3 and 6 to describe in detail the variable tuning antenna of his invention. Although *Kane* does not explicitly teach the description of figs. 3 and 6 are applicable to figure 36, it is clear from the reference that figure 36 is only an embodiment of the invention the comprises the variable tuning circuit of figures 3 and 6, therefore, it is correct to apply the description of figures 3 and 6 to the embodiment of fig 36. Also, it is incorrect for the applicant to interpret the word "offset" to mean reduce. *Kane* teaches the positive reactance offsets the negative reactance, which means the positive reactance "counterbalances" the negative reactance; therefore, examiner has correctly interpreted the reference as "cancel" since counterbalancing refers to "compensating equivalents".

16. Applicant's arguments with respect to claims 2-7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Karacsony whose telephone number is 571-270-1268. The examiner can normally be reached on M-F 7:30 am - 5:00 pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RKQK

/Hoang V Nguyen/
Primary Examiner, AU 2821